

Harada et al. is directed to a brake system which incorporates an automatic vehicle deceleration control apparatus or braking system - see col. 7, lines 13-18. Harada et al. sets a safe vehicle speed based on the turning state of the vehicle and a road coefficient of friction, and automatically decelerating the vehicle only by applying the brake system.

In Harada et al., the automatic deceleration control increases either the safe vehicle speed (in a first embodiment - see Fig. 3, for example) or the allowable lateral acceleration of a vehicle (in a separate, alternative, embodiment - see Fig. 8, for example) as a function of the road friction coefficient, where the road friction coefficient is not a controllable parameter.

In both embodiments, Harada et al., has a first parameter quantity indicative of a rolling amount of a vehicle body, which is either vehicle speed or lateral acceleration. However, Harada et al. does not provide "a second parameter quantity indicative of a change rate of the rolling amount of the vehicle body" as recited. Rather, if Harada et al. has a second parameter, Harada et al.'s second parameter is the road friction coefficient, which is not a controllable parameter.

In Harada et al., either the safe vehicle speed or the lateral acceleration is the controlled parameter, which is determined as a function of the road friction coefficient, which is not a controllable or controlled parameter.

The Office Action treats the recited "means for providing a first parameter quantity indicative of a rolling amount of the vehicle body" as "disclosed in the last four lines of the abstract." The last four lines of the abstract state that, "[W]hen the vehicle is about to exceed its safe speed as it turns, it is automatically decelerated to the safe speed or below. Thus, the vehicle can be prevented from spinning, drifting out, or rolling over."

This is a description of the first of two different embodiments disclosed by Harada et al., i.e., the embodiment shown in Fig. 3 and described from col. 1, line 52 to col. 3, line 21.

The second, alternative, embodiment of Harada et al. is substantially different from the first. The second, alternative, embodiment is disclosed from col. 3, line 22 to col. 5, line 28.

The first embodiment automatically decelerates the vehicle so as to cause the actual vehicle speed to be equal to or less than the safe vehicle speed set in accordance with a turning state and the coefficient of friction of the road surface "when a turning motion of the vehicle is detected." See col. 2, lines 3-6. The first embodiment of Harada et al.

As best as Applicants can determine from reading the last four lines of the abstract, Harada et al.'s first parameter is vehicle speed, which is the only parameter discussed in the last four lines of the abstract that appears to be indicative of "a rolling amount of the vehicle body."

The Office Action then alleges that the "second parameter quantity indicative of a change rate of the rolling amount of the vehicle body" is "lateral acceleration as disclosed in col. 13, lines 48-51.

Applicants respectfully submit that this is not what Harada et al. teach, and is a mischaracterization of Harada et al.'s teachings. Col. 13, lines 48-51 are directed to the second, alternative, embodiment of Harada et al. which uses lateral acceleration instead of vehicle speed and a turning motion of the vehicle as the parameter for automatically decelerating a vehicle.<sup>1</sup>

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<sup>1</sup> Moreover, col. 13, lines 48-51 of Harada et al, which are relied on in the Office Action as pertinent to the claimed invention, should be read on the basis of the description starting at col. 12, line 63 with respect to Fig. 8, which relates only to the second alternative embodiment. Briefly, the lateral acceleration  $G_y$  made available from a section 56 is processed through sections 72 and 74 to provide a variably allowable lateral acceleration  $\alpha a1$  and a maximum allowable lateral acceleration  $\alpha a2$ , and when  $\alpha a1$  is equal to or less than  $\alpha a2$ ,  $\alpha a1$  is supplied to section 78a so that a target deceleration is determined according to a difference of the lateral acceleration  $G_y$  from  $\alpha a1$ , while when  $\alpha a1$  is greater than  $\alpha a2$ ,  $\alpha a2$  is supplied to section 78b so that a target deceleration is determined according to the difference of the lateral acceleration  $G_y$  from  $\alpha a2$ . This has nothing to do with the essence of the claimed invention.

The Office Action then states that Harada et al. do not disclose that the target deceleration control performed as a function of the increase in the second parameter includes increasing the target deceleration from a predetermined minimum value to a predetermined maximum. This is a correct statement because neither of Harada et al.'s alternative embodiments provides both the first and second recited parameters. Moreover, because the two alternative triggering parameters disclosed by Harada et al. are in separate, alternative embodiments, one of ordinary skill in the art would have no motivation to combine them in a single embodiment without destroying the express teachings of Harada et al.

Furthermore, even if this improper combination were accomplished (based solely on improper hindsight) it would admittedly not result in the claimed feature recited in the last clause of claim 1.

Additionally, in the control of the instant invention, even when the actual rolling amount is a certain specific value, when the rolling amount is rapidly increasing, the target deceleration is increased above what it would be when the rolling amount were slowly increasing (or was not increasing), resulting in more rapid deceleration of the vehicle in the former case than in the latter case, so that the rolling amount of the vehicle is more strongly suppressed in the former case than in the latter case. Such a control is neither disclosed nor suggested by Harada et al.

Mine et al. is directed to a vehicle maneuvering control device which decelerates a vehicle approaching a curve by setting a target deceleration, then determining a deceleration  $D1$  that can be achieved by (1) executing supercharging pressure down and (2) cutting fuel to achieve the target deceleration  $Dt$  (col. 23, lines 50-67). If the deceleration achieved by this method fails to achieve the target deceleration  $Dt$ , then a deceleration  $D2$  that can be achieved by (1) executing supercharging pressure down, (2) cutting fuel, and (3) closing the throttle is determined. See col. 24, lines 1-23. If the deceleration achieved by the first two methods fails

to achieve the target deceleration  $D_t$ , a deceleration  $D_3$  that can be achieved by (1) executing supercharging pressure down, (2) cutting fuel, (3) closing the throttle, and (4) executing a gear change to the lowest possible change is determined. See col. 24, lines 24-56. If the deceleration achieved by the previous methods fails to achieve the target deceleration  $D_t$ , the controller, in addition to performing steps (1) - (4), boosts brake force to achieve the target deceleration  $D_t$ . See col. 25, lines 1-13.

Mine et al.'s target deceleration is set to 80% of the allowable deceleration  $XgLim$  set by the allowable deceleration setting section 28 (col. 23, lines 50-55), and the allowable deceleration  $XgLim$  is obtained by determining a reference value  $XgLim_0$  based on the road surface friction coefficient setting section 28a and the road slope (col. 15, lines 59-65 and col. 21, lines 46-51).

Mine et al.'s target deceleration  $D_t$  is not given a predetermined minimum or maximum value, nor is it disclosed as increasing from a predetermined minimum to a predetermined maximum value according to an increase in a parameter quantity indicative of a change of rate of the rolling amount of the vehicle body. Col. 16, lines 18-29 indicates that the allowable deceleration may be corrected due to acceleration of the vehicle due to gravity, but there is no disclosure of a predetermined minimum or maximum value of  $D_t$ , nor of increasing  $D_t$  from a predetermined minimum to a predetermined maximum value, as recited.

The absolutely last resort to vehicle deceleration in Mine et al. is braking the vehicle, and that occurs only when the other four deceleration steps are insufficient to achieve the target deceleration. In other words, Mine et al. actuates its braking system to accomplish a target deceleration of the vehicle only when four threshold amounts of deceleration achievable without applying brake pressure have been exceeded. The braking system of Mine et al. is not actuated when the first parameter, e.g., vehicle speed, exceeds a threshold value

predetermined therefor. Four other vehicle controls have to be actuated before the braking system of Mine et al. is actuated.

The Office Action incorrectly characterizes the Mine et al. disclosure by alleging that Mine et al. teach a vehicle maneuvering control system in which a step in the target deceleration control includes increasing the target deceleration from a value D1 to a value D2 with D1 being the minimum of the two values, referencing col. 24, lines 1-20.

In Mine et al., the target deceleration remains the same for each determination of D1, D2 and D3, which are not target decelerations. D1, D2 and D3 are merely calculated deceleration amounts that can be achieved by up to five specific vehicle elements, four of which do not include applying brake pressure.

Even if Mine et al. were combined with Harada et al., the reference combination would not disclose or suggest the claimed invention.

As noted above, neither of Harada et al.'s alternative embodiments provides the recited first parameter and second parameter. Moreover, because the two parameters are disclosed in separate, alternative embodiments, one of ordinary skill in the art would have no motivation to combine them in a single embodiment without destroying the express teachings of Harada et al. as using them as separate triggers for automatic deceleration. Additionally, Harada et al. fails to teach using the target deceleration from a predetermined minimum value to a predetermined maximum value according to an increase of a second parameter quantity which is indicative of a change rate of the rolling amount of the vehicle body.

Furthermore, there would be no incentive to combine the teachings of Harada et al. and Mine et al. because Harada et al. is only directed to deceleration by applying brake pressure whereas Mine et al. is directed to using five types of deceleration control, only one of which is applying brake pressure. Mine et al.'s claimed invention is directed to the five types of deceleration control, and sequentially applying the five types. Mine et al. uses

braking only as a last resort. For at least that reason, one of ordinary skill in the art would not look to Mine et al. to modify Harada et al.

It is impermissible for an examiner to engage in hindsight reconstruction of the claimed invention using appellant's structure as a template and selecting elements from references to fill the page. The references themselves must provide some teaching whereby the appellant's combination would have been obvious. In re Gorman, 911 F.2d 982, 986, 18 USPQ2d 1885, 1888 (Fed. Cir, 1991). That is, something in the prior art as a whole must suggest the desirability, and thus obviousness, of making the combination. See, In re Beattie, 974 F.2d 1309, 1312, 24 USPQ2d 1040, 1042 (Fed. Cir. 1992); Lindemann Maschinenfabrik GMBH v. American Hoist and Derrick Co., 730 F.2d 1452, 1462, 221 USPQ 481, 488 (Fed. Cir. 1984).

Applicants respectfully submit that the only incentive to achieve the claimed invention is found in Applicants' disclosure and that the Office Action is engaging in impermissible hindsight reconstruction of the invention based solely on Applicants' disclosure.

Accordingly, the claimed invention is not obvious in view of Harada et al. or Mine et al. taken alone or in combination, and allowance of claims 1 and 2 is respectfully solicited.

The Office Action rejects claim 4 under 35 USC §103(a) as unpatentable over Japanese Harada et al. (JP 10-278762) in view of Mine et al. as applied in the rejection of claim 1, and further in view of Ikemoto et al. This rejection is respectfully traversed.

The Harada et al. - Mine et al. reference combination fails to render claim 1, from which claim 4 depends, unpatentable for the reasons stated above.

Ikemoto et al. is cited and applied to teach, in col. 2, lines 28+, the use of the rate of change of the steering angle in the control of vehicle over-roll. Harada et al. is said to teach, in col. 9, lines 30-32 that yaw rate, which is affected by lateral acceleration, is computed based on the basis of steering angle. The Office Action alleges that it would be obvious to

make the second parameter substantially proportional to the change rate of steering angle to provide an alternate threshold for promoting increased deceleration.

The Office Action has provided no motivation for one of ordinary skill in the art to modify the Harada et al.-Mine et al. reference combination to provide an alternate threshold for promoting increased deceleration.

In the first place, because Harada et al. use a variety of sensed data as input to compute a single value to use to control braking, there is no motivation for them to abandon their teachings to pluck a single sensed input - change of rate of steering angle - and make it the second parameter. That would drastically change how their system operates. There is no motivation in either Harada et al, or Ikemoto et al. to do this.

In the second place. Ikemoto et al. merely measure the rate of change of the steering angle as one of any inputs to predict the roll angle of the vehicle. Neither Harada et al. nor Mine et al. include such a parameter in their devices. Harada et al. appear content to simply use the steering wheel angle and compute a steering wheel angular speed - see col. 8, lines 40-64. Even if, for the sake of argument, Ikemoto et al.'s teachings were combined with those of Harada et al. and Mine et al., the change of rate of steering angle would be just one more parameter to input to the filtering section 52 and input to the arithmetic circuits 54, 56, etc., and the resulting reference combination would still be limited to computing a single target deceleration in section 66.

Thus, the reference combination of Harada et al., Mine et al. and Ikemoto et al. would still not disclose or suggest the claimed invention for the reasons stated above regarding claim 1.

Moreover, there is no incentive to combine the teachings of these three references. The reasons why one of ordinary skill in the art would not be motivated to combine the teachings of Harada et al. and Mine et al. are set forth above. The third reference, Ikemoto et

al., is not even directed to deceleration control. Rather, it is directed to adjusting the height of a vehicle. One of ordinary skill in the art would not be motivated to combine the teachings of Ikemoto et al. with those of Harada et al. or Mine et al. because Ikemoto et al. is not directed to controlling deceleration or braking.

This reference combination is another example of impermissible hindsight reconstruction of Applicants' claimed invention.

Accordingly, the claimed invention is not obvious in view of Harada et al. or Mine et al. or Ikemoto et al. taken alone or in combination, and allowance of claim 4 is respectfully solicited.

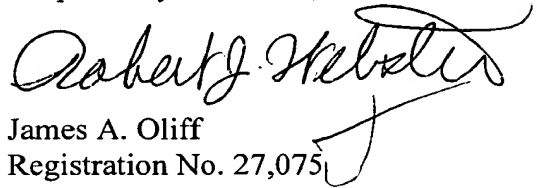
For all of the foregoing reasons, reconsideration of the application is respectfully requested. It is submitted that claims 1-6 patentably distinguish over the art applied.

Accordingly, allowance of claims 1-6 is respectfully solicited.



Should the Examiner determine that anything further is desirable to place the application in even better form for allowance, the Examiner is respectfully requested to contact the undersigned at the telephone number indicated below.

Respectfully submitted,



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